

School District of La Crosse

# **Sixth Grade Math**

Developed for Implementation in 2008-2009

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# **Guiding Principles for Curriculum Development School District of La Crosse**

## **Board of Education's ENDS Policies Adopted 2001**

### **E-1 District Mission**

Students will discover their talents and abilities and will be prepared to pursue their dreams and aspirations while contributing effectively to their diverse communities.

### **E-2 Academic Achievement Goals**

Students will demonstrate continuous improvement toward a high level of individual success in all required and elective academic/curricular areas using multiple measures of performance.

### **E-3 Involved Citizenship**

Students will strive for mutual understanding as contributing citizens in a diverse world.

### **E-4 Responsible Life Choices**

Students will acquire the knowledge and skills necessary to make effective and responsible life choices.

## **Wisconsin Academic Model Standards**

All district curricula will be aligned to the Wisconsin Model Academic Standards available on the web at <http://www.dpi.state.wi.us/dpi/standards/matintro.html>

## **District Non-Discrimination Policy**

It is the policy of the School District of La Crosse that no person may be denied admission to any public school in this district or be denied participation in, be denied the benefits of, or be discriminated against in any curricular, extracurricular, pupil service, recreation, or other program or activity because of the person's sex, race, religion, national origin, ancestry, creed, pregnancy, marital or parental status, sexual orientation, or physical, mental, emotional, or learning disability or handicap as required by s. 118.13 Wis. Stats., and/or section 504 of the Rehabilitation Act of 1973.

# **Math, Grade 6 Curriculum Guide**

## **School District of La Crosse**

### **Goals and Instructional Practice**

Classroom practice should be aimed at creating a community of learners and scholars, a place where the teachers and students actively investigate and discuss mathematical ideas, using a wide variety of tools, materials, and technology. Classes should engage students in high-level mathematical thought that includes both conceptual and content understanding.

### **Important Goals/Expectations for Students in Math**

- to compute accurately and apply computation skills in a variety of real life settings.
- to develop a deep conceptual understanding in order to make sense of mathematics (including knowing how, when and why to apply skills and knowledge).
- to master specific knowledge necessary for its application to real problems, for the study of related subject matter, and for continued study in mathematics.
- to learn and view mathematics as a way of thinking about and interpreting the world around them.
- to recognize that mathematics is a creative part of human culture in much the same way as music or fine art.
- to represent and record problem solving using pictures, numbers, words and voice.
- to recognize that some problems have more than one solution.

### **Goal/expectation for teachers:**

- to provide experiences, explorations, enrichment and supplementary lessons that will enhance district learner outcomes/benchmarks.

### **District Goals : Wisconsin State Content Standards B-F**

- Goal One:** Students will use numbers effectively for various purposes such as counting, measuring, estimating and problem solving.
- Goal Two:** Students will use geometric concepts, relationships and procedures to interpret, represent and solve problems.
- Goal Three:** Students will select and use appropriate tools and techniques to measure things to a specified degree of accuracy. They will use measurement in problem solving situations.
- Goal Four:** Students will use data collection and analysis, statistics and probability in problem solving situations.
- Goal Five:** Students will use, discover, describe and generalize simple and complex patterns and relationships. In the context of real-world problem situations, the students will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

# Sixth Grade Math

**Unit:** Prime Time

**Time Line:** 6 weeks

**Unit Sub-Topics:**

Factors and Multiples  
Whole Number Patterns & Relationships  
Common Multiples & Common Factors  
Prime Factorizations

**Wisconsin State Standards:**

A8.1, A8.2, A8.3, A8.4, A8.5, A8.6, B8.1,  
B8.2, B8.4, B8.6, B8.7, F8.1

**Learner Outcomes:**

Understand relationships among factors, multiples, divisors, and products  
Recognize and use properties of prime and composite numbers, even and odd numbers, and square numbers  
Use rectangles to represent the factor pairs of numbers  
Develop strategies for finding factors and multiples, least common multiples, and greatest common factors  
Recognize and use the fact that every whole number can be written in exactly one prime factorization  
Use factors and multiples to solve problems and explain some numerical facts of every day life  
Solving problems by building models, making lists and tables, drawing diagrams, and solving simpler problems

**Instructional Strategies:**

Investigations, Group Work  
Demonstrations, Discussions,  
Individual Practice, and Presentations

**Integration:**

Social Skills...Cooperation and Following Rules in Games  
Recreation...Expanding and Developing Games  
Technology...Web based activities

**Suggested Activities/Resources:**

Prime Time Text, Computation Binder, Teacher-made Supplements, Online Text Support

**Suggested Assessments:**

Written work, Presentations and project(s),  
Group and individual investigations, and Quizzes and Unit test

# Sixth Grade Math

**Unit:** Data About Us

**Time Line:** 6 weeks

**Unit Sub-Topics:**

Organizing and Interpreting Data  
Central Tendencies of Data: Median, Mean  
Frequency and Distribution: Mode and Range  
Using Graphs to Explore Data: Line Plots, Stem & Leaf Plots,  
and Coordinate Graphs

**Wisconsin State Standards:**

A8.1, A8.2, A8.3, A8.4, A8.5, A8.6, B8.1,  
B8.2, B8.4, B8.6, B8.7, C8.5, D8.1, E8.1,  
E8.2, E8.3, E8.4, E8.5, E8.6

**Learner Outcomes:**

Conduct data investigations by posing questions, collecting and analyzing data, and making interpretations to answer questions  
Represent distributions of data using line plots, bar graphs, stem & leaf plots, and coordinate graphs  
Compute and choose the most appropriate to describe a distribution of data: mean, median, mode, or range of the data  
Distinguish between categorical data and numerical data and identify which graphs and statistics may be used to represent each kind of data  
Develop strategies for comparing distributions of data

**Instructional Strategies:**

Investigations, Group Work  
Demonstrations, Discussions,  
Individual Practice, and Presentations

**Integration:**

Social Skills...Getting to Know Each Other  
Social Studies...Distribution Graphs,  
Physical Science...Linear Graphs  
Technology...Web based activities

**Suggested Activities/Resources:**

Data About Us Text, Computation Binder, Teacher-made Supplements, Online Text Support

**Suggested Assessments:**

Written work, Presentations,  
Group and individual investigations, and Quizzes and Unit test(s)

# Sixth Grade Math

**Unit:** Bits and Pieces I

**Time Line:** 6 weeks

**Unit Sub-Topics:**

Estimating & Visualizing Fractional Parts  
Comparing & Ordering Fractions  
Converting Between Fractions & Decimals  
Fraction, Decimal, and Percent Equivalency

**Wisconsin State Standards:**

A8.1, A8.2, A8.3, A8.4, A8.5, A8.6, B8.1,  
B8.3, B8.4, B8.6, B8.7

**Learner Outcomes:**

Model fractions, decimals and percents  
Understand and use equivalent fractions  
Compare and order fractions  
Move between fractions, decimals and percents  
Estimate using benchmarks 0,  $\frac{1}{2}$ , 1,  $1\frac{1}{2}$ , 2,  $2\frac{1}{2}$   
Use benchmarks 50%,  $\frac{1}{2}$ , 0.5 to understand rational numbers  
Use context, models, drawings, patterns, or estimation to understand rational numbers

**Instructional Strategies:**

Investigations, Group Work,  
Creating Mathematical Manipulative,  
Demonstrations, Discussions,  
Individual practice, and Presentations

**Integration:**

Business Education...Fund raising goals,  
Science...Metric Measurements/Decimals  
Consumer Education...Customary Ruler  
Real Life Application...Figuring grades

**Suggested Activities/Resources:**

Bits and Pieces One Text, Computation Binder, Teacher-made Supplements, Online Text Support

**Suggested Assessments:**

Written work, Group and individual investigations, and Quizzes and Unit test(s)

# Sixth Grade Math

**Unit:** Bits and Pieces II

**Time Line:** 6 weeks

**Unit Sub-Topics:**

Estimating Sums of Fractions

Sums and Differences of Fractions

Products and Quotients of Fraction

**Wisconsin State Standards:**

A8.1, A8.2, A8.3, A8.4, A8.5, A8.6, B8.1,

B8.2, B8.3, B8.4, B8.6, B8.7, F8.1

**Learner Outcomes:**

Estimating using benchmarks and other strategies to justify sums, differences, products, and quotients of fractions

Model sums, differences, products, and quotients of fractions

Find rules to generalize patterns in numbers

Develop algorithms for sums, differences, products, and quotients of fractions

Chose appropriate operation when solving a fraction problem

Use fact families to show inverse relationships

Solve problems using operations on fractions

**Instructional Strategies:**

Investigations, Group Work, Discussions,

Individual practice, and Presentations

**Integration:**

Social Studies...Understanding land space

Consumer Education...Baking, measuring

**Suggested Activities/Resources:**

Bits and Pieces II Text, Computation Binder, Teacher-made Supplements, Online Text Support

**Suggested Assessments:**

Written work, Presentations,

Group and individual investigations, and Quizzes and Unit test(s)

# Sixth Grade Math

**Unit:** Bits and Pieces III

**Time Line:** 6 Weeks

**Unit Sub-Topics:**

Estimating Sums and Differences of Decimals  
Finding Sums & Differences of Decimals  
Finding Products & Quotients of Decimals  
Using Percents in Everyday Life; Tax, Tips, Shopping  
Making and Understanding Circle Graphs

**Wisconsin State Standards:**

A8.1, A8.2, A8.3, A8.4, A8.5, A8.6, B8.1,  
B8.2, B8.3, B8.4, B8.5, B8.6, B8.7, F8.1

**Learner Outcomes:**

Estimating sums and differences of decimals by using fraction knowledge  
Applying place value knowledge when working with decimals  
Chose appropriate operation when solving a decimal problem  
Recognize real-world situations where decimals are used  
Develop algorithms for solving a variety of types of percent problems

**Instructional Strategies:**

Investigations, Group Work, Discussions,  
Individual practice, and Presentations

**Integration:**

Business Education...Catalog order forms, Sale Prices  
Sports...Result Times/Scores, Batting averages, Shooting Percentages  
Consumer Education... Tax, Tips, Shopping

**Suggested Activities/Resources:**

Bits and Pieces III Text, Computation Binder, Teacher-made Supplements, Online Text Support

**Suggested Assessments:**

Written work, Projects,  
Group and individual investigations, and Quizzes and Unit test(s)



# Sixth Grade Math

**Unit:** Covering & Surrounding

**Time Line:** 5 Weeks

**Unit Sub-Topics:**

Finding Area & Perimeter

Changing Area & Changing Perimeter

Measuring Triangles, Parallelograms, Irregular Shapes & Circles

**Wisconsin State Standards:**

A8.1, A8.2, A8.3, A8.4, A8.5, A8.6, B8.1,

B8.2, B8.5, C8.1, C8.2, C8.4, C8.5, D8.1,

D8.2, D8.3, D8.4, E8.4, F8.1, F8.2

**Learner Outcomes:**

Analyze what it means to measure area and perimeter (cover & surround)

Develop strategies to find area & perimeter of rectangular and non- rectangular shapes

Discover the relationship between perimeter and area including that one can vary while the other stays fixed

Analyze how the areas of triangles, parallelograms and rectangles are related

Develop area and perimeter formulas for rectangles, triangles, parallelograms and circles

Develop techniques for estimating area and perimeter of an irregular figure

Practical Application of area and perimeter

**Instructional Strategies:**

Investigations, Group Work, Discussions,

Individual practice, and Project(s)

**Integration:**

Consumer Education...Flooring & fencing supplies, buying pizza

Art...Tessellations

Hobbies...Quilting

**Suggested Activities/Resources:**

Covering & Surrounding Text, Computation Binder, Teacher-made Supplements, Online Text Support

**Suggested Assessments:**

Written work, Projects,

Group and individual investigations, and Quizzes and Unit test(s)